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NOTES AND NEWS.

It is hoped that readers of the **MONTHLY** will cooperate in contributing to the general interest of this department by sending items to the Editor-in-Chief.

We have already referred to the American Field Service Fellowships for French Universities (1921, 44). Among the twenty fellows appointed for 1921-1922 there is one mathematician, Mr. F. H. MURRAY, now a Frederick Sheldon Fellow from Harvard University, studying in Paris.

Professor ALBERT EINSTEIN of Berlin University accepted the invitation of the head of the Zionist World Movement to accompany the Zionist delegation from Europe to the United States last March. It is reported that Professor Einstein is appealing to the Jews in this country for support of the Hebrew University to be erected on the Mount of Olives in Jerusalem.

The Benares Mathematical Society was founded in August, 1918, "for the encouragement and promotion of research in various branches of pure and applied mathematics, and in the history of mathematics." Dr. GANESH PRASAD was elected president for three years and Professor Lakshmi Narayan, secretary. At the end of 1919 there were 51 ordinary members, and two honorary members: Professors E. T. WHITTAKER of Edinburgh University and E. B. WILSON of Massachusetts Institute of Technology. The contents of the *Proceedings* are referred to elsewhere in this issue, [1921, 179; see also page 31]. Volume 1, 1919, contained 22 + 51 pages; volume 2, part 1, 1920, 3 + 42 pages.

In July, 1920, the editors of *Scientific American* announced the offer, by one of its friends, Mr. Eugene Higgins, an American resident of Paris, of a prize of five thousand dollars (\$5,000.00) for "the best essay on the Einstein postulates and their consequences, written so that a person with no special mathematical training may read it profitably." The contest was left in the hands of the *Scientific American*. No essay was to contain more than 3,000 words and all "must be in English, and written as simply, lucidly and non-technically as possible." The essays had to be in the office of the *Scientific American* by November 1, 1920. Professors LEIGH PAGE of Yale and E. P. ADAMS, of Princeton, were the judges. In January, 1921, the prize was awarded to Mr. LYNDON BOLTON, a senior examiner in the Patent Office, London. His "two most immediate rivals" were also Englishmen. Among the competitors were: Professor H. H. TURNER, of Oxford University; Professor A. G. WEBSTER, of Clark University; and Professor G. D. BIRKHOFF, of Harvard University, who "heads the list of mathematicians pure and simple who competed."

Nearly 300 essays were received. They came in greater quantity from Germany than from any other foreign country. England stood next on the list and one or more essays were received from Austria, Canada, Chili, Cuba, Czecho-

slovakia, India, Jamaica, Jugoslavia, France, Switzerland, the Netherlands, Denmark, the Fiji Islands, Italy, Mexico and South Africa.

Mr. Bolton's essay was published in the *Scientific American*, February 5, and in the *Westminster Gazette*, London, February 14.

It is now announced that it was the Mr. Higgins mentioned above who was the anonymous donor of the prize of five hundred dollars (\$500.00) offered by the *Scientific American* in 1909 for the "best popular explanation of the fourth dimension, the object being to set forth in an essay not longer than twenty-five hundred words the meaning of the term so that the ordinary lay reader could understand it." Professors H. P. MANNING, of Brown University, and S. A. MITCHELL, of Columbia University, were the judges.

The members of the committee on arrangements for the Wellesley meeting of the American Mathematical Society, September, 1921, are as follows: Professors E. V. HUNTINGTON, HELEN A. MERRILL, A. D. PITCHER, R. G. D. RICHARDSON, and CLARA E. SMITH.

The council of the American Mathematical Society has voted to affiliate itself with the American Association for the Advancement of Science. As a result the secretary of the Society will be a member of the council of the Association.

Professor W. F. OSGOOD has withdrawn from service on the committee of the Bôcher Memorial Fund (1921, 151). Professor DUNHAM JACKSON has been added to the committee and Professor E. B. VAN VLECK is its chairman.

We have already recorded (1921, 150) the presentation to Professor F. N. COLE of an address accompanied by a purse containing about four hundred and seventy-five dollars (\$475.00). Professor Cole has presented this sum to the American Mathematical Society. The Council of the Society named it The Cole Fund and appointed a committee to report on the most desirable method of expending the income from the Fund.

In February, 1921, the secretary of the American Mathematical Society sent to MAGNUS GÖSTA MITTAG-LEFFLER, professor emeritus of the University of Stockholm, the following letter:

"As March sixteenth approaches I have been directed by the Council of the American Mathematical Society to extend to you heartiest greetings and felicitations on your seventy-fifth birthday.

"Your thirty-five years of service in universities has been recalled, also your authorship of many contributions to research, your founding and direction of a leading mathematical journal of which forty volumes have already been published, your establishment of a Mathematical Institute, and your leadership in varied movements. The Council feels that few have more widely, consistently, and ably fostered the maintenance of high ideals in connection with the development of mathematics in the world."

At the meeting of the American Mathematical Society in New York City, February 26, 1921, the following papers were presented: "The equations of interior ballistics" by A. A. BENNETT; "A geometrical characterization of the paths of particles in the gravitational field of a mass at rest" by L. P. EISENHART; "On the polar equation of algebraic curves" by ARNOLD EMCH; "Generalization of the concept of invariancy derived from a type of correspondence between

functional domains. Second proof of the finiteness of formal binary concomitants modulo p " by O. E. GLENN; "Some empirical formulas in ballistics" and "Summation of a double series" by T. H. GRONWALL; "The mathematical theory of proportional representation with a substitute for least squares" by E. V. HUNTINGTON; "A property of the Pellian equation with some results derived from it" by JOHN McDONNELL; "Concerning the sum of a countable number of closed point-sets" by R. L. MOORE; "A necessary and sufficient condition that the sum of two bounded, closed, and connected point-sets should disconnect a plane" by ANNA M. MULLIKIN; "On the apportionment of representatives" by F. W. OWENS; "Coefficient of the general term in the expansion of a product of polynomials" by L. H. RICE; "Periodic functions with a multiplication theorem" and "Note on equal continuity" by J. F. RITT; "Expressions for the Bernoulli function of order p ," "The expansion of a continued product," "Method for the summation of a family of series" and "Note on the evaluation of a definite integral" by I. J. SCHWATT; "On the simplification of the structure of finite continuous groups with more than one two-parameter invariant sub-group" by S. D. ZELDIN.

At the twenty-seventh annual meeting of the American Mathematical Society, held in New York, December 28, 29, 1920, the following papers were presented: "An extension of Poincaré's geometric theorem" by G. D. BIRKHOFF; "On certain simple skew frequency curves" by R. W. BURGESS; "Systems of linear inequalities" by W. B. CARVER; "Differential geometry of the complex plane" by J. L. COOLIDGE; "The value of a bond to be redeemed ultimately, both principal and interest, in equal installments" and "Valuation of bonds bought to realize a specified rate of interest assuming the amortizations to accumulate at a savings bank rate" by C. H. FORSYTH; "On a new treatment of theorems of finiteness (second paper)" (preliminary report) by O. E. GLENN; "Parallel maps of surfaces" by W. C. GRAUSTEIN; "Zeros of Legendre functions" by EINAR HILLE; "A mathematical theory of proportional representation" by E. V. HUNTINGTON; "Some properties of methods of evaluation of divergent sequences" by W. A. HURWITZ; "Properties of orbits in the general theory of relativity" and "The solar gravitational field in finite form" by EDWARD KASNER; "Conformal transformations of period n and groups generated by them" by HARRY LANGMAN; "The Hilbert integral and Mayer fields for the problem of Mayer in the calculus of variations" by GILLIE A. LAREW; "Some special cases of the flecnodal transformation of ruled surfaces" by J. W. LASLEY, Jr.; "Transformations of trajectories on a surface" by JOSEPH LIPKA; "Generalizations of the classical construction of the strophoid" by R. M. MATHEWS; "Note on minimal varieties in hyperspace" by C. L. E. MOORE; "Pleasant questions and wonderful effects" (presidential address) by FRANK MORLEY; "Recurrent motions of the discontinuous type" by H. M. MORSE; "Certain theorems concerning connected point sets" by ANNA M. MULLIKIN; "On the projectivity assumption in projective geometry" by F. W. OWENS; "The theory of relative maxima and minima of quadratic and Hermitian forms and its application to a

new foundation for the theory of bilinear forms. First paper: Equivalence of pairs of bilinear forms" by R. G. D. RICHARDSON; "Divergent double series and sequences" by G. M. ROBISON; "The efficiency of projectile and gun" by J. E. ROWE; "Independent expressions for the Bernoulli numbers," "Relations involving the numbers of Bernoulli and Euler," "Independent expressions for Euler numbers," "Independent expressions for the Euler numbers of higher order" and "Summation of a type of Fourier's series" by I. J. SCHWATT; "On homogeneous functions as generators of an abstract field" and "The concept of an iterative compositional algebra" by A. R. SCHWEITZER; "The analytic geometry of complex variables with some applications to function theory" by J. S. TAYLOR; "On the convergence of the Sturm-Liouville series" and "On the location of the roots of polynomials" by J. L. WALSH; "On the maximum value of a determinant" and "On the automorphic transformation of a bilinear form" by J. H. M. WEDDERBURN; "The average of an analytic functional," "The average of a functional" and "Further properties of the average of a functional" by NORBERT WIENER; "Einstein's four-dimensional space is not contained in a five-dimensional linear space" by C. E. WILDER; "On quadratic congruences and the factorization of integers" by H. S. VANDIVER; "On the structure of finite continuous groups with one two-parameter subgroup" and "On the structure of finite continuous groups with a finite number of exceptional infinitesimal transformations" by S. D. ZELDIN.

The following reports of courses in mathematics offered at Summer Sessions in 1921 have been received.

Columbia University, July 5–August 13. Undergraduate courses are given as follows: Elementary and intermediate algebra, 4 points (that is, the equivalent of 4 semester hours), by Professor W. W. RANKIN; Plane geometry, 4 points, by Professor RANKIN; Logarithms and trigonometry, 2 points, by Professor G. W. MULLINS, Dr. J. K. RITT and Dr. K. W. LAMSON; Solid geometry, 2 points, by Dr. JESSE DOUGLAS and Professor RANKIN; Algebra, 2 points, by Professors W. B. FITE and MULLINS; Analytical geometry, 2 points, by Professor L. P. SICELOFF, Dr. LAMSON and Dr. DOUGLAS; Calculus (first part), 2 points, by Professor SICELOFF; Calculus (second part), 2 points, by Dr. G. A. PFEIFFER. Graduate courses are offered as follows: By Professor EDWARD KASNER: General survey of modern mathematics, 3 points, and Mathematical introduction to Einstein's theory of relativity, 2 points. By Dr. RITT: Theory of numbers, 3 points. By Professor FITE: Differential equations, 3 points. By Dr. PFEIFFER: Theory of functions of a real variable, 3 points.

Harvard University, July 5–August 13. By Professor G. D. BIRHKOFF: Trigonometry, Analytic geometry, and Differential and integral calculus. By Professor O. D. KELLOGG: Differential and integral calculus. These courses will be accepted as regular semester courses towards the degrees of A.B., A.A., and S.B.